

Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R3PGm

Plains Mesa Grassland

General Information

Contributors (additional contributors may be listed under "Model Evolution and Comments")

Modelers

Wendel Hann whann@fs.fed.us

Reviewers

William L. Baker bakerwl@uwyo.edu

Vegetation Type

Grassland

Dominant Species*

BOGR2
BOCU
ACHY
STIPA

General Model Sources

- Literature
- Local Data
- Expert Estimate

LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

Rapid Assessment Model Zones

- | | |
|--|---|
| <input type="checkbox"/> California | <input type="checkbox"/> Pacific Northwest |
| <input type="checkbox"/> Great Basin | <input type="checkbox"/> South Central |
| <input type="checkbox"/> Great Lakes | <input type="checkbox"/> Southeast |
| <input type="checkbox"/> Northeast | <input type="checkbox"/> S. Appalachians |
| <input type="checkbox"/> Northern Plains | <input checked="" type="checkbox"/> Southwest |
| <input type="checkbox"/> N-Cent.Rockies | |

Geographic Range

Arizona, Colorado, New Mexico, and Utah. This PNV has 2 subtypes; 1 strongly influenced by the Sonoran and Chihuahuan climates that is generally south of 33 degrees latitude and west of 104 degrees longitude; 2 is strongly influenced by the Great Basin and Great Plains climates and is generally north of 33 degrees latitude and west of 104degrees longitude. Southerly type is characterized by gramma grasses, yuccas and nolina. Northerly type is characterized by Great Basin grasses like Indian Ricegrass and Stipas in addition to the gramma grasses.

Biophysical Site Description

Usually has mollic grassland soils with relatively high clay content that precludes shrub or tree seedling establishment due to wet/dry cracking during the monnsoon growing season. The moisture regime is adequate to allow shrub or tree seedling establishment in the absence of fire, but the soils preclude survival. Elevations ranging from 1250 to 2200 meters on mesas and benches and in valleys. Elevations ranging from 1050 to 2000 meters on northerly aspects. Elevatons ranging from 1450 to 2400 meters on southerly aspects. Precipiation ranging from 10 inches to 20 inches, with 50-60% occurring from May through August. Annual growing degree days ranging from 3000 to 5000 growing degree days (least sure about value of this in the rule set). REGAP types = CES302.732; CES302.736; CES303.659; CES304.787; CES303.817; CES303.672. At the coarse scale this PNV was not mapped. It was included in the Desert Grassland (34), Desert Shrub (28), Southwest Shrub Steppe (27), Chaparral (26), Juniper-Pinyon (22) and Warm Sagebrush (70). A rule set based on these PNVs, current cover, precipitation, elevation, aspect, and growing days will be needed to spatially map this type.

Vegetation Description

Strongly influenced by the flora, climate, and disturbance regimes of the Sonoran desert to the southwest, Great Basin to the northwest, and Great Plains to the east. Current vegetation may have 1/2 shrubs, but would not have trees (juniper, oaks, pine, or pinyon) or shrubs (mesquite).

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

In the south, Great Basin grasses such as Indian Ricegrass and Stipas are not present, while in the north they were major components. To the south, the fire adapted sprouting junipers with yuccas and nolina and lack of Great Basin grasses are good indicators. To the north, the Great Basin and Great Plains non-sprouting junipers and Great Basin grasses are good indicators.

Disturbance Description

Naturally this system had frequent fire dominated by replacement fires associated with productive grass fuels and cycles of moisture and drought. Patchy fires (causing 25-75% top-kill) were less frequent and were modeled here as mixed severity, although there is some debate about how often this type of patchy fire might actually occur.

Native ungulate grazing plays a small role in replacement where buffalo herds concentrated, but generally maintained systems. Drought and moist cycles play a strong role interacting with both fire and native grazing.

Adjacency or Identification Concerns

The Plains Mesa Grassland (R3PGm) usually in a mosaic below Ponderosa pine PNV, Oak-Juniper PNVs, or Mountain Shrub PNV, or these cooler/moister PNVs can occur on northerly aspects. Usually occurs above the Desert Grassland PNV and Desert Shrub PNV or on the relatively more moist aspects, and to the east of the true plains grasslands. R3PGm, R3PGmws, and R3PGmwt were not mapped at the coarse-scale. They were included in Desert Grassland (34), Desert Shrub (28), Southwest Shrub Steppe (27), Chaparral (26), Juniper-Pinyon (22) and Warm Sagebrush (70).

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Landscape adequate in size to contain natural variation in vegetation and disturbance regime. Topographically complex areas can be relatively small (< 1000 acres). Uniform large mesas should be relatively large (> 10, 000 acres).

Issues/Problems

Type was not mapped for the coarse-scale or by Kuchler (1964), yet it is an important type identified by Brown 1982, Dick-Pedie 1993, and the NRCS ecological sites. It covers a substantial amount of land in the SW and is much more productive and diverse than the desert grasslands at lower elevation zones or plains grasslands to the east. It would be very valuable to do a very intensive literature search and review on this type as well as associated field recon to assess historic/current photos, local knowledge, soils, fire scars on old trees in protected sites, species adaptations, etc.

Model Evolution and Comments

Peer review suggested that that all plains grassland types be combined (R3PGm, R3PGmst, R3PGRs, R3PGRsws, R3PGRswt), mixed fire eliminated, and replacement fire interval set at 20 years. Because the workshop participants identified these separate types, they were not lumped together and fire regimes were left as-is, although descriptions were expanded to clarify use of mixed severity fire.

Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 15%

Early1 PostRep

Description

All sites, post-fire grass regrowth, grass seedlings, and forbs. Blue gramma, aster, scurfpea, mallow, primrose

Indicator Species* and Canopy Position

BOGR2
ASTER
NOLIN
EREMA

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	15 %	55 %
Height	no data	no data
Tree Size Class	no data	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class B 25%

Mid1 Closed

Description

More productive sites and moist years. Mature development of sideoats gramma, blue gramma, Indian ricegrass and stipas to the north, threeawns, hairy gramma, black gramma, sand sage, yucca, snakeweed, prickly pear

Indicator Species* and Canopy Position

BOCU
BOGR2
NOLIN
ACHY

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	35 %	55 %
Height	no data	no data
Tree Size Class	no data	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class C 60%

Mid1 Open

Description

Less productive sites and drought years. Mature development of sideoats gramma, blue gramma, stipas to the north, threeawns, hairy gramma, black gramma, sand sage, yucca, snakeweed, prickly pear

Indicator Species* and Canopy Position

BOGR2
STIPA
OPUNT
YUCCA

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	15 %	35 %
Height	no data	no data
Tree Size Class	no data	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class D 0%

Late1 Open

Description

Indicator Species* and Canopy Position

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	%
Height	no data	no data
Tree Size Class	no data	

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Upper layer lifeform differs from dominant lifeform.
 Height and cover of dominant lifeform are:

Fuel Model no data

Class E 0%

Late I Closed
Description

Indicator Species* and Canopy Position**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	0 %	%
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Upper layer lifeform differs from dominant lifeform.
 Height and cover of dominant lifeform are:

Fuel Model no data

Disturbances

Non-Fire Disturbances Modeled

- Insects/Disease
 Wind/Weather/Stress
 Native Grazing
 Competition
 Other: Wet Years
 Other:

Fire Regime Group: 2

- I: 0-35 year frequency, low and mixed severity
 II: 0-35 year frequency, replacement severity
 III: 35-200 year frequency, low and mixed severity
 IV: 35-200 year frequency, replacement severity
 V: 200+ year frequency, replacement severity

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

Historical Fire Size (acres)

Avg:
 Min:
 Max:

Sources of Fire Regime Data

- Literature
 Local Data
 Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	20	3	30	0.05	81
Mixed	85	3	150	0.01176	19
Surface					
All Fires	16			0.06177	

References

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